Remarks by the Honorable Sean O'Keefe
NASA Administrator
Rowan University Commencement Address
University Green
Glassboro, New Jersey
"Pioneering the Future"
May 14, 2004

Good morning. President Farish (Dr. Doland Farish) thank you so much for your warm welcome.

I appreciate very much your kind invitation to speak to Rowan's very accomplished class of 2004.

Let us acknowledge at the outset the most important people here today. Would the soon-to-be-graduates please rise and join me in recognizing the people who have really made all this possible – your families. Please join me in a round of applause for them.

I know the primary job of a commencement speaker is to be brief and be gone. I also know that all that stands between you and the fulfillment of

your achievement is me. Commencement speakers are like the principal at an Irish wake. It's absolutely essential that you have one in order for the party to begin, but you don't expect him to say anything. So I understand that.

Certainly the most that any commencement speaker ever hopes to convey is some nuggets you can take away and say, "Well, it was memorable for those points." I'll try not to disappoint on this score.

And so the two points I hope to convey today are about the values of public service and the possibilities we can imagine if we yield to the human desire to explore.

Now I'm of Irish heritage, as you might have figured, and as some of you know, the Irish have a saying that you have to draw a line in life…on one side of it you put the past…and on the other, the future. For some people, the hard part is deciding

which part of the line you want to live on…Well today, despite the renown Irish tendency to dwell on the past…I will focus on the future…the future you will help to create.

As you might expect, at NASA we believe President Bush's vision to extend civilization's horizons to the surfaces of planets beyond our own will be a significant part of that future.

Indeed, I trust that five current Rowan students will be among those who help us pioneer the space frontier.

This summer, ably led by Professors Jennifer Kadlowec and Stephanie Farrell, the Rowan students will test a newly developed leg press exercise in the skies over the Gulf of Mexico.

This exercise may improve the ability of astronauts to avoid muscle atrophy during long space missions. The students will conduct their test on a

NASA KC-135A aircraft that is indelicately known as the "Vomit Comet."

As their plane makes about 30 parabolas or roller coaster-like steep climbs and descents, these intrepid Rowan students will experience 25 to 30 seconds of zero gravity each dive.

Now as fun as this experience will be, and if you like stomach churning, the Rowan team's research has a serious purpose.

A vexing problem we must overcome before we can send space explorers to Mars and beyond is the relatively high rate of bone and muscle loss our astronauts suffer on lengthy missions in zero or low gravity.

If the Rowan team can develop a means to help astronauts prevent bone and muscle loss, this would be a huge development, absolutely huge.

So we wish great success to the Rowan team members, who are the fourth group of Rowan students to take advantage of NASA's Reduced Gravity Student Flight Opportunities Program in the past six years.

So you see if you combine an excellent Rowan education with a commitment to take practical research into the heavens, you can go very far indeed.

There are, of course, many other venues that will enable you to help create a positive future in the century that is just beginning.

One of those is through service to others, which has always been a theme of this outstanding institution.

President Farish has proudly told me about the Rowan student body's commitment to public service.

I was very impressed to learn about Rowan's Make A Difference Day in the fall and Big Event in

the spring, in which hundreds of Rowan students work on meaningful community service projects reading to young children, cleaning up parks and helping to build homes for Habitat for Humanity.

Hundreds of Rowan students also participated in the annual March of Dimes walk and the Crohn's and Colitis run/walk. Members of your Greek Community raised more than $4,000 to help Andrew Simmers, a local 4-year-old afflicted with leukemia. That's a record you all can be very proud of and I salute every Rowan student who has taken part in community service activities.

I hope that as graduates you will build on this great spirit of philanthropy.

This is an extraordinary time in our country's history. While current news is dominated with accounts of disgusting behavior, this shouldn't overshadow the fact that Americans have

demonstrated, through countless acts of kindness, that our country's greatest strength lies in the hearts and souls of our citizens. As new college graduates, you now have the opportunity to share your time and talents with those who need it most.

Indeed, the President has asked all Americans to dedicate a part of our careers in service to others.

President Bush created the USA Freedom Corps to help Americans answer his "call to service" by providing meaningful opportunities to serve both at home and abroad.

Along your career development path, I encourage you to give the Freedom Corps serious consideration. Service like this will provide you the opportunity to help countless others and by doing so enrich your own lives.

Incidentally, a great example of a person who has found time to both devote himself to public

service and succeed in his professional pursuits is Joe Acaba, a middle school math and science teacher from Dunnellon, Florida who served in the Peace Corps, and who now is a new member of our astronaut corps.

Let me now turn to the world and world's beyond you will help shape in the years ahead. In the first half of the 21st century, as you pursue your careers, the graduates of Rowan will have the opportunity to make America a better place.

Your generation will help protect our homeland security, promote democracy and human rights throughout the globe, fight new and deadly diseases, enhance environmental quality, improve our schools, advance economic and technological progress and as the President has proposed, participate in a renewed spirit of discovery in our country.

I'm excited that as the second century of flight unfolds, those of you who will pursue science and technology careers will help carry the torch of exploration to heights unimagined and into frontiers unknown.

We have indeed accomplished a great deal in NASA's 45 years, but are only just now are at the beginning of this age of space exploration.

I'm reminded of a remarkable piece that David McCullough wrote just a few years ago -- a historical biography of John Adams, the second President, in which Adams lamented that the pride of the American fleet, the USS Constellation lay at anchor in Boston Harbor for days and days at a time because the weather wouldn't permit it to sail.

In space exploration we are in the equivalency of that time. Even though the Constellation was, at that period, the pride of the American fleet -- and it

demonstrated the new nation's goal of engaging in world commerce and of becoming a force to be reckoned with -- it couldn't get underway.

A force of nature, which has always either enabled or deterred new advancement, limited it. And that is the weather. We are in the same mode right now with space exploration, an age of sail. Conditions must be perfectly right for us to proceed. And we aspire to the "Age of Steam."

Your generation is privileged to be alive when for the first time in human history we have the ability to enter the "Age of Steam" in space exploration. I hope more than a few of you join NASA in this quest.

As the men and women of NASA implement our bold new space exploration vision, we will work with our international partners to extend the reach of

human civilization and the spirit of freedom ever outward, using a meticulous stepping stone approach.

Those of you in this class of 2004 are probably familiar with our stepping stones if you are among the 125 million visitors to the NASA website over the course of the last four months, accounting as many of you probably did for the 10 billion hits that we have had to our website in that span of time.

So many will already recognize these points. And to help refresh your memory, the stepping-stones are as follows: First, we will return the Space Shuttles safely to flight and in so doing honor the legacy of our remarkable Columbia astronauts, who were lost so tragically a year ago. Going forward, we recognize that we must show great diligence to reduce the risk of exploration to the lowest level humanly possible.

Second, we will complete the International Space Station and use this research laboratory that orbits 250 miles over our heads--and comes around every 90 minutes-- to test the long-term effects of space travel on human beings.

An American astronaut Mike Fincke and Russian cosmonaut Gennady Padalka are carrying on this research on their Expedition Nine mission onboard the Space Station right now.

We have come a long way indeed from the time 37 years ago during the darkest period of the Cold War when an American President, Lyndon Johnson, and Russian Premier, Alexi Kosygen, faced off in a testy summit right here on this beautiful campus.

Third, we will send robotic probes and then human explorers on to the Moon to demonstrate technologies needed for Mars and beyond.

And finally, through an effort aptly named Project Constellation, recalling John Adams' lament of 200 years ago, we will develop those capabilities that will allow humans to explore the far reaches of the solar system through the development of power generation and propulsion capabilities.

This approach will allow us to learn from our experiences and to incorporate new technological developments along the way.

And as the ongoing missions of the Mars Exploration Rovers Spirit and Opportunity demonstrate when you go out to various places in the solar system and ask profound questions, you may very well receive profound answers.

The discovery by the Opportunity Rover of evidence that Mars once had large amounts of surface water is a profound finding indeed.

And what Opportunity has told us is that the climate and atmosphere of Mars was once profoundly different. Understanding why it changed may well provide us a whole new perspective on our place in this solar system, in the galaxy and indeed in the broader universe.

Now just think about the other compelling scientific discoveries that the continued exploration of space will bring about in the coming decades.

When the history of your time is written, we can well imagine that your generation of explorers will have sought life's abodes in our corner of the universe.

You will be able to look up to the stars that once guided the sailing vessels of yore and instead, we will map continents on dozens of their planets, and in so doing gather knowledge that may help improve our own human condition here on Earth.

The pursuit of the President's vision will spur technological developments that will lead to new products and services and tangibly improve the lives of people throughout the world.

Just as the Apollo program led to important advances in computing and electronics when I was growing up, the potential spinoff benefits from the Constellation exploration program will be just as considerable.

Since the Apollo era, MRI's, cataract detection, and heart pumps are all examples of NASA technologies used to advance our exploration goals being applied to productive use in society.

We believe the technology development necessary to execute and implement our new space exploration vision will accelerate advances in robotics, autonomous and fault tolerant systems, human-machine interface, life support systems and

novel applications of nanotechnology and microdevices.

Those of you who engaged in laboratory work on these cutting-edge topics will be in a great position to be the movers and shakers of our nation's technological future.

We're optimistic that our space program boosts the opportunities we will have to become a smarter, safer, healthier and more intelligent world on a scale never seen before in the history of the planet, at a pace hardly thought possible.

But in sharp contrast to the Apollo era, for which the price of being second was catastrophic, this is not a race. Instead it will be a journey, propelled by a renewed spirit of exploration and discovery.

The first explorers to set foot on Mars may well indeed be sitting in this audience today. You will have the means to make this vision come to pass,

because as the President has observed, "Exploration is not an option we choose. It is a desire written in the human heart."

As all of you look forward to the challenges and opportunities you have ahead, whether they are in space exploration, or in all the fields that Rowan has well prepared you to enter, I think it is worth recalling a thought offered by the distinguished American jurist Oliver Wendell Holmes. "Greatness is not in where we stand, but in what direction we are moving. We must sail sometimes with the wind, and sometimes against it -- but sail we must, and not drift, nor lie at anchor."

Pursue that instinct. Pursing your dreams. And together I believe we can achieve some remarkable accomplishments.

In closing, I wish to congratulate all of you on your achievements up to this special point. I

congratulate your faculty members who have guided you to this day, your family members who have put up with you, and I wish all of you the very best in your pursuit of a life that matters, continuing to stand as you have for excellence and service to causes greater than your individual self-interest.

Thank you and Godspeed to the graduates of the class of 2004.